IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Jun Tian

Application No.: 10/035,830

Filed: October 18, 2001

For: CONTENT AUTHENTICATION AND
RECOVERY USING DIGITAL WATERMARKS

Examiner: V. Perungavoor

Date: March 9, 2007

Art Unit: 2132
Conf. No.: 1787

<u>VIA ELECTRONIC FILING</u>

<u>PRE-APPEAL BRIEF REQUEST FOR REVIEW</u>

MAIL STOP AF
COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellants request review of a rejection in the above-identified application. No amendment is being filed with this request.

This request is being filed with a Notice of Appeal.

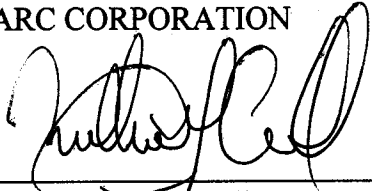The review is requested for the reason(s) stated on the attached sheets. (No more than 5 pages are provided.)

Date: March 9, 2007

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Respectfully submitted,
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REASONS FOR REVIEW 10/172,734

REASONS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

The Board will reverse the Examiner's anticipation rejection of claims 1 and 3-9 over Sandford (5,727,092). A few reasons for reversal are noted below.

Paraphrasing a bit, claim 1 calls for embedding a compressed version of a first media signal into a second media signal, where the first and second media signals represent content objects *that are perceptually similar.*

Such an arrangement is useful, for example, to confirm that an image "content object" has not been altered (e.g., "content authentication"). An original image can be compressed (the compression may be effected by various processes, including JPEG2000 compression or hashing), and the compressed version can be steganographically embedded *back into* the original. Both the original and compressed data correspond to the same "content object," i.e., image. Thus, the content objects represented by the two sets of data are "perceptually similar."

The Final Rejection states that Sandford teaches such an arrangement (citing col. 8, lines 43-55). However, Sandford does not so teach.

The cited Sandford excerpt reads:

> Embedding auxiliary data into the compression representation slightly changes the statistical frequency of occurrence of the index values. If the auxiliary bit sequence is pseudo-random, the frequencies of occurrence for the index pairs i and j are nearly equal after embedding. Modifying the histogram to force inequality in the frequencies of occurrence in adjacent values reduces entropy somewhat, and the entropy coding portion of the compression algorithm is found to operate with slightly greater efficiency, increasing the effectiveness of the lossy compression method. Thus, even if no auxiliary information is to be embedded, changing the statistical properties of the histogram pairs improves the compression ratio for lossy methods. Histogram modification to improve compression is part of this invention.

As can be seen, there is no teaching of embedding a compressed first media signal into a second media signal, where the two media signals represent *perceptually similar* content objects. Accordingly, the Board will reverse the rejection.

Independent claim 5 concerns a related *decoding* process. That claim requires decoding an auxiliary signal imperceptibly embedded into a host signal, and using the auxiliary signal to authenticate the host signal, "wherein the host signal represents a first content object, and the auxiliary signal represents at least a portion of a content object that is *perceptually similar to said first content object*."

The Final Rejection cites the same passage (copied above) from Sandford, for support of the "perceptually similar" requirement. However, as noted, this passage does not teach such limitation. Again, the rejection will be reversed by the Board.

In view of such defects concerning limitations in the two rejected independent claims, applicants do not further belabor this paper with other arguments concerning the other rejected claims, the Sandford reference, and the rejections – all of which are reserved for possible presentation to the Board.